32501.000
03.01.00.0078

N00204.AR.000582
NAS PENSACOLA
5090.3a

UNITED STATES ENVIRONMENTAL PROTECTIC

REGION IV

345 COURTLAND STREET. N E
ATLANTA. GEORGIA 30365

JUL 07 1993

4WD-FFB

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Commanding Officer
Attn: Ms. Linda Martin - Code 1851
SOUTHNAVFACENGCOM
P.O. Box 190010
North Charleston, South Carolina 29419-9010

Re: Draft Comprehensive Sampling and Analysis Plan (CSAP)
NAS Pensacola, Florida
EPA Site ID No.: FL 9170024567

Dear Ms. Martin:

The Environmental Protection Agency (EPA) has completed its review of the the Navy's Draft Comprehensive Sampling and Analysis Plan (CSAP). Our comments are enclosed.

The CSAP is a critical component of all RI/FS Work Plans. As per Section VIII, Consultation, of the Federal Facilities Agreement (FFA), all RI/FS Work Plans are primary documents. Accordingly, EPA approval and finalization of the following primary documents is dependent upon EPA acceptance of the CSAP:

1. In correspondence dated September 1, 1992, EPA conditionally approved the RI/FS Work Plans for "Batch 1" sites (including RI/FS Sites 1, 2, 11, 15, 26 and 30).

2. In correspondence dated August 11, 1992, EPA conditionally approved the RI/FS Work Plans for "Batch 4" sites (including RI/FS Sites 17, 22, 38 and 39).

3. In correspondence dated January 7, 1993, EPA invoked informal dispute on the draft final work plans for "Batch 2" sites (including the RI/FS Work Plans for Sites 3, 9, 27, 29 and 31).

At present, each of the above RI/FS Work Plans contain numerous references to the previously-submitted Generic Quality Assurance Project Plan (GQAPP). In correspondence dated November 2, 1992, EPA concluded that the GQAPP contained numerous deficiencies and would not be considered for approval. Instead, the GQAPP would be replaced by the SAPs for each site to be prepared by the (at that time) newly-selected Navy contractor. Acceptance of each site-specific SAP by the regulatory agencies also would "constitute final approval of the corresponding RI/FS Work Plan." The Navy subsequently opted to prepare a comprehensive SAP (the CSAP) in order to simplify preparation of the

site-specific SAPs. The CSAP consolidates all generic field and analytical procedures into a single document which then is referenced in each of the site-specific *SAPs.*

Accordingly, final approval of each RI/FS Work Plan is contingent upon receipt of an acceptable site-specific *SAP* for the corresponding site(s) and receipt of an acceptable CSAP. Rapid finalization of the CSAP will facilitate rapid finalization and subsequent approval of numerous primary documents and provide the Navy with written assurance that the work being conducted is satisfactory for RI/FS purposes. With these interests in mind, EPA wishes to propose the following non-enforceable schedule for CSAP finalization:

ACTION	TIME PERIOD
Parties meet as needed to resolve any issues regarding CSAP comments	TBA
Navy submits revised *CSAP* addressing Parties' comments/concerns	45 days from Navy receipt of all Parties' comments
EPA approves CSAP, providing revised version addresses all Agency concerns	Within 21 days of receipt of revised CSAP

Upon receipt of an acceptable CSAP, EPA shall pursue the issues related to finalization of the above-mentioned RI/FS Work Plans as follows:

1. By addressing EPA's comments on the *CSAP,* the Navy also shall address most of the outstanding issues which led to the conditional approval of the RI/FS Work Plans for "Batch 1 and 4" sites. EPA therefore shall approve the RI/FS Work Plan for each site in Batches 1 and 4 upon receipt of an acceptable CSAP and an acceptable site-specific SAP for the subject site.

2. As proposed by the Navy in correspondence dated March 30, 1993, the Parties' receipt of an acceptable *CSAP,* and acceptable site-specific *SAPs* for two of the sites in "Batch 2" (sites 25 and 27, currently under revision) will address the majority of the issues raised in the dispute on the "Batch 2" RI/FS Work Plans. The Parties then may consider this dispute resolved, and work out any remaining issues on a site-by-site basis through the review and approval of additional site-specific SAPs. EPA concurs with this proposal, and proposes that the period of informal dispute for the "Batch 2" RI/FS Work Plans be extended to no later than the anticipated approval date for the CSAP, September 15, 1993.

If the Navy is in agreement with (i) the above schedule for CSAP finalization and (ii) EPA's proposal to extend the period of informal dispute on the "Batch 2" RI/FS Work Plans to the anticipated date of CSAP approval, September 15, 1993, please provide this office with written notification of your acceptance within 45 days of receipt of this letter.

If you have any questions or require further clarification on these issues, please contact me at (404)347-3016.

Sincerely,

Allison W. Drew, RPM
Department of Defense Remedial Section
Federal Facilities Branch

Enclosure

cc: Ron Joyner, NAS, Pensacola
Eric Nuzie, FDER
Henry Beiro, Ensafe/Allen & Hoshall

TECHNICAL REVIEW AND COMMENTS
COMPREHENSIVE SAMPLING AND ANALYSIS PLAN
NAVAL AIR STATION (NAS) PENSACOLA
PENSACOLA, FLORIDA

1. Page 1-1, Paragraph 1:
Please delete the following statement from the CSAP text:

"The sampling and analysis plan (SAP) completed for each site will be the primary document for the RI/FS investigation. The SAP will document any deviations from the previously submitted work plans and document specific sampling procedures and analytical methods to be used during the investigation".

This statement is somewhat confusing and misleading given that the SAP is not a primary document, as per Section VIII. of the Federal Facilities Agreement (FFA). Please replace it with the following statement:

"The RI/FS for each site shall be completed in accordance with the final approved Sampling and Analysis Plan *(SAP)* for that site. Each site's SAP shall be incorporated by reference into that RI/FS Work Plan and attached to the Work Plan as "Attachment 1". All activities and procedures contained in the CSAP and the site-specific SAPs shall supercede any activities and procedures specified in any previously-submitted documents associated with the RI/FS process, including the RI/FS Work Plan and the GQAPP. Consequently, the RI/FS Work Plan for a site shall not be considered complete, or implementable, until the corresponding SAP for that aite is finalized."

2. Page 1-1, Paragraph 2:
Regarding the proposed use of a "Contract Laboratory Program (CLP) approved Laboratory", the U.S.EPA CLP does not approve laboratories. The CLP is a contractual arrangement whereby the U.S.EPA procures analytical services. Also, as described in the EPA guidance document Data Quality Objectives for Remedial Response Objectives (March 1987) "Level IV protocol" applies to analytical methods only. Please make the appropriate corrections to the text.

3. Pages 3-3 through 3-6, Section 3.2:
EPA agrees that a soil gas survey is useful as a screening tool for VOC contamination. The general soil gas sample procedures and equipment outlined in the plan are acceptable. However, a soil gaa survey is not a substitute for soil sampling. Also, what alternate screening approaches and techniques will be used at sites where the only suspected contaminants are non-VOCs (e.g. metals, PCBs, pesticides)?

4. Page 3-10, Section 3.5:
The results of the habitat/biota surveys completed by Ecology & Environment, Inc. should be referenced in this section and taken into consideration when designing and conducting these surveys. Duplication of previous efforte must be avoided whenever possible in order to ensure timely progress towards RI/FS completion.

5. Pages 4-1 through 4-14, Section 4.0:
A. EPA recommends monitoring the breathing zone for volatile organic vapors during borehole advancement. A flame-ionization detector (FID) and photo-ionization detector (PID) should be used during all subsurface soil sampling (e.g. Section 4.6).

B. It is extremely important that surface and subsurface soil samples be mixed as thoroughly as possible to ensure that the sample is representative of the interval sampled. Soil samples should be mixed as specified in Section 4.2.10. (Environmental Compliance Branch (ECB) Standard Operating Procedures and Quality Assurance Manual (2/1/91) (SOPQAM). The most common method of mixing is referred to as quartering. The soil in the sample pan is divided into quarters. Each quarter is mixed, then all quarters are mixed into the center of the pan. This procedure is followed several timee until the sample is adequately mixed. If round bowls are used for sample mixing, adequate mixing is achieved by stirring the material in a circular fashion and occasionally turning the material over. Soil and sediment samples collected for purgeable organic compounds analyses should not be mixed. The 2-ounce (60-ml) sample container should be filled completely; no head space should remain in the sample containers.

6. Page 4-4, Section 4.3, Before Surface Soil Sampling:
8Item Y3 should go before #1.

7. Page 5-1, Section 5.0:
EPA agrees with the Navy's statement that "proper well construction and development are essential in reducing the amount of entrained sediment in the groundwater sample." EPA does not agree with the statement that "Temporary monitoring wells do not meet both of these criteria...". During the summer of 1992, personnel from EPA's Environmental Services Division installed a test well at NAS Pensacola. Following a minimal amount of well development (pumping) a sample visibly free of entrained sediment was obtained. While obtaining a relatively sediment-free sample may prove difficult in some portions of the facility, the predominantly sandy lithology at NAS Pensacola would indicate that as long as proper temporary well installation and development procedures are followed, a sediment-free sample can be obtained using temporary well methods.

Likewise, the installation of permanent wells does not guarantee the collection of a representative, sediment-free groundwater sample. Appropriate well installation, development, purging and sampling techniques must still be adhered to. For instance, as stated in Section 7.4 (page 7-51) of the Draft RI Report for Operable Unit 10, "groundwater purged from many of the wells was slightly to substantially turbid at locations both near and removed from the IWTP...". Based on a preliminary review of this report, it appears that this turbidity is most likely due to the type of pump used to purge the wells prior to sampling. The surging action of the pump may have resulted in the collection of groundwater samples which yielded false positives for metals and possibly false negatives for volatiles.

Temporary groundwater sampling methods offer a means for rapidly delineating groundwater contaminant plumes in the field when used in conjunction with

appropriate analytical methods, such as a field GC. The results tend to be more reliable than those obtained for soil-gas investigations. The technique can also be used to detect a wider range of contaminants. Attachment A provides a list of some of the currently available temporary groundwater sampling methods. This same list was provided as Appendix A to EPA's comments on the Draft RI/FS Work Plans for Operable Units 6-9 (see correspondence dated August 13, 1992).

Rapid and cost-effective completion of these investigations should be the goal of all of the Parties. The use of permanent monitoring wells to accomplish plume delineation (which appears to be the intent for most sites where the number of planned permanent wells exceeds 5) does not meet this goal. Therefore, for all such sites where plume delineation is still ongoing, an alternate means for delineating groundwater contamination must be used. Suitable approaches include: (i) the use of one of the temporary groundwater sampling methods described in Attachment A, or (ii) the use of soil gas screening techniques, for sites where VOCs are the primary contaminants, in combination with the collection of 10-20% confirmation samples using one of the temporary groundwater sampling methods listed in Attachment A.

8. Page 5-2, Section 5.3:
EPA wishes the record to show that it recommends and prefers the use of stainless steel (304 or 316) over PVC for well construction. However, EPA notes that the Navy has opted to use PVC (NSF Standard 14) at their own risk, following a thorough consideration of the use of this material.

9. Pages 5-3 through 5-6, Figures 5-1 through 5-4:
The following comments are provided regarding the proposed monitor well construction designs:

A. At least 6 inches of filter material should be placed at the bottom of the bore hole to serve as a firm footing before installing the well screen and casing.

B. According to these figures, "no glued fittings" will be used. In order to create a joint that is sealed properly, teflon tape or teflon 'o' rings should be used in conjunction with the threaded couplings.

C. The screen length selected should be no greater than 10 feet in length (i.e. $\leq$ 10') to ensure that a discrete interval of the aquifer is monitored. Dilution of the ground water sample may occur for screen lengths greater than 10 feet.

10. Page 5-8, Subsections 2 & 3:
During well construction, the well should be purged or bailed after the sand pack is installed and before the bentonite seal is installed. Purging the well will force the sand to move around the well screen quicker and promote settling and packing of the sand grains in the annular space. If the sand pack is not allowed to settle around the well screen before the bentonite pellets are installed, a void space will form above the sand pack creating a less efficient well.

11. Pages 5-14 through 5-16, Section 5.4:
What circumstances or conditions will be used to determine which well development method will be utilized?

12. Page 6-4, "After Purging":
"If well is purged dry...". It is recommended that the well not be pumped dry or dewatered below the top of the well screen. If the water level drops below the well screen, ground water contained in the aquifer is exposed to oxygen which will chemically change the water chemistry. Also, if the well is dewatered below the screen, volatile contaminants may be striped from the ground water as it cascades along the well screen during recharge.

13. Page 6-6 Section 6.2, "During Groundwater Sampling":
Groundwater samples must not be filtered. If the Navy prefers, both a filtered and a non-filtered sample may be collected for metals analysis. Proper well installation, development and purging techniques must be utilized to minimize the turbidity of the samples (see Appendix E of the SOPOAM).

14. Page 7-2, "During Dredge Sampling":
Since a Ponar sampler opens from the bottom, clarify how the VOC and toxicity samples will be collected directly from the Ponar, rather than first emptying the sediment into a large container, such as a stainless steel bowl.

15. Page 7-3, "Coring Equipment":
Provide the diameter of the core sampler.

16. Pages 7-3 through 7-4, "During Core Sampling":
The sample used for lithologic logging should not be handled prior to evaluation. The information should be visual until after the sample (or portion of the sample to be analyzed) has been removed.

17. Page 7-7, Paragraph 1:
In cases where surface water depth exceeds 3 feet, it should be sufficient to record water quality parameters at 3 depths (i.e. 1 foot below water surface, mid-depth, and 1 foot above the bottom), rather than at every foot of the water column.

18. Pages 8-1 through 8-19, Section 8.0:
While much of the strategy and conceptual design information included in this section is useful and essential to the full RI/FS Work Plan, it belongs in the work plan, proper, and should therefore be deleted from the CSAP. The contents of the Sampling and Analysis Plan (SAP) should be limited to a presentation of sampling and analytical techniques/protocol (Comprehensive SAP) and the location, number, type etc. of samples to be collected (Site-specific SAP). For example, the sections contained in this Draft CSAP on soil and groundwater sampling are primarily limited to descriptions of the necessary sampling steps and protocol. They do not include discussions of such issues as (i) how these individual sampling events fit into the overall investigative approach, or (ii) the conditions under which a test may or may not be performed.

Also, in order for this document to be a comprehensive SAP, it must be expanded to include sampling and analysis plans for all three major habitat types, including: (i) upland/terrestrial areas, (ii) wetlands and (iii) surface water bodies. At present, for example, most of the "Phase I" subsections deal with wetlands; upland areas are only briefly mentioned, and surface water bodies are not addressed. Please recall, also, that the appropriate data must be collected for all sites where a potential threat to the environment exists. This includes not only sites 40-42, but also sites 1-39. The potential on-site ecological risks for the latter group of sites must be assessed in the RODs for each of these sites.

19. Pages 8-1 through 8-2, Section 8.1:
Phase I involves the collection and compilation of preliminary background information on the site, including "basic biological characteristics of the site and how they may relate to contamination" and a "review of existing information...[including]...data from previous sampling,..topographic maps, aerial photographs...". EPA concurs that this is information is needed "to develop a sampling strategy for Phase II". However, the result of this approach is that:

(i) the OU-specific SAP will not be completed until after Phase I, since the data gathered during Phase I is needed to design the RI/FS sampling plans; and
(ii) the true RI/FS (i.e. adequate characterization of contaminant sources or pathways) will not commence until Phase 11.

Consequently, while EPA may approve of the contents of the forthcoming Draft Final RI/FS Work Plans for Operable Units 40-42, these documents may not be considered for approval as RI/FS Work Plans until the OU-specific SAPs which specify the proposed sampling strategies for adequately characterizing the nature and extent of any contamination in the Bay, Bayou or Wetlands are received.

B. The original intent of the FFA Parties in designating the Wetlands, Bay and Bayou Operable Units was to provide a means for addressing any offsite migration of contaminants from the 39 terrestrial sites identified in Appendix A of the FFA into these ecologically sensitive areas. The purpose of establishing these Operable Units was not to provide a means for identifying any additional contaminant sources which may or may not have impacted these ecological resources. In order to assure that valuable resources are effectively concentrated with this goal in mind, the work plans must clearly state this goal and identify the portions of the Bay, Bayou and Wetlands which clearly have little or no chance to be impacted by one of the 39 terrestrial sites. Remaining portions of these ecological areas, which have potential to be impacted by one or more of these 39 sites, should then be identified as requiring at least a Phase I, with additional phases to be performed as needed. The only exceptions to this approach should be for wetlands which are identified as background, or reference, wetlands for the study. Upon identification, these non-impacted wetlands may be carried through Phase I and beyond.

20. Page 8-1, Paragraph 1:
"Data generated from Phase I will consolidate the results of the diversity studies, chemical analyses, and toxicity tests performed in Phase II...". Is this a reference to the Phase II results for sites other than the Bay, Bayou and Wetlands? Presumably, results cannot be consolidated until after they are collected. Please clarify.

21. Page 8-1, Paragraph 3:
The text should also include threatened species.

22. Page 8-2 through 8-8, Section 8.1.0 through 8.1.6:
A. Many of the wetland delineation criteria discussed in these sections could be determined through either visual field observation or through more rigorous and extensive laboratory analytical methods. It appears that the former approach is planned. However, this should be clearly stated in the work plan. Also, a field schedule which estimates the planned duration of wetland delineation activities must be provided in the work plan.

B. "Emphasis will be placed on performing a statistically defensible study." Since Phase I is a qualitative study, as stated on page 8-1, it does not need to be "statistically defensible". For example, a qualitative description of the relative abundance of terrestrial plant speciee would be sufficient for Phase I. Phase II can provide a more quantitative study, if needed. Also, the habitat biota surveys performed by E & E have already collected some of this information. Their findings should be utilized whenever possible.

C. "Before an accurate sampling strategy can be devised for sampling a wetland, the boundaries must be delineated." While any wetlands which have potentially been affected by sites 1-39 should be identified, a detailed jurisdictional delineation of all wetlands is not needed. Please keep in mind that the purpose of this study is not to determine wetland boundaries per se, but to determine the nature and extent of contamination in the wetlands, as related to contaminant migration from sites 1-39.

23. Pages 8-7 through 8-8, Section 8.1.6:
Please combine the contents of sections 8.1.1 and 8.1.7, since both sections share the same title. Reorganize the remaining contents and subheadings of Section 8.1 as needed.

24. Pages 8-8 through 0-9, Section 8.1.7, Paragraph 2:
A. "Before Phase I sampling...". Should this read "Phase II"? The tasks to be completed during Phase I appear to be directed towards describing the site in sufficient detail to permit the selection of sampling locations for Phase 11. Please clarify.

B. As discussed and agreed to at the May 12-13, 1993 RPM meeting, a better explanation or definition of the terms "station" and "substation" must be included in the text.

C. Groundwater flow direction, particularly as it relates to the movement of contaminant plumes, should be added to the list of factors to be used to select sampling stations and substations.

D. Regarding the selection of sampling stations and substations for the Bay and Bayou, as discussed and agreed to at the May 12-13, 1993 RPM meeting, collection and evaluation of the following quantitative information on sediment and surface water properties will be completed prior to, and ueed in the selection/refinement of, these sampling stations and substations:

sediment grain size
sediment TOC
generation of a sediment distribution map
surface water quality parameters
water depth profile

Since this information will be gathered following Phase I, but prior to the initiation of full-scale sampling and analytical efforts, it was suggested that this preliminary data gathering effort be termed "Phase IIA" while the remainder of Phase II data collection efforts be termed "Phase IIB" for the Bay and Bayou.

The Parties also agreed that a more qualitative inspection of sediment and surface water properties was sufficient for use in selecting sampling stations and substations for the Wetlands. These qualitative efforts would therefore simply comprise part of the "Phase I" investigation for the Wetlande.

25. Page 8-9, Paragraph 2:
"These stations will be sampled in a random fashion, with all locations having an equal probability of being selected." Rather than being totally random, sampling in downstream or downgradient areas should follow a stratified random sampling method, as discussed at the May 12 meeting. A biased sampling design should be used in area of expected contamination, while random sampling can be used in areas that are less likely to be contaminated.

26. Page 8-9, Paragraph 3:
"For the first site sampled, each station will have at least eight replicate samples taken." Does this mean that one wetland (or portion of the Bay, or Bayou) will be selected as a "test" wetland, with the results of the eight replicate samples being used to determine how many replicates are needed for the remaining wetlands to be sampled? Further explanation of the approach and justification for collecting replicate samples is needed. Will the same approach be used at all sampling stations and substations and for all habitats? Also, at the May 12 meeting, the Navy proposed to reduce the number of replicate samples from 8 to 3. The number of replicate samples collected must be kept to a minimum. However, adequate assurance that the amount of data collected will be sufficient and defensible must also be provided.

27. Pages 8-8 through 8-10, Section 8.1.7:
The following general decisions regarding sampling stations/substations were also made at the May 12 meeting:

A. Terrestrial surface soil samples shall be collected from 0-1' below land surface.

B. Sediment samples shall be collected from 0-6" below land outface. A deeper interval (0.5-2') may also be collected as needed.

C. Transect lengths for Pensacola Bay should be based upon the location of the transition zone from fine- to coarse-grained sediments. Transects should not enter the navigation channel.

28. Page 8-10, Section 8.2:
While species richness/diversity analysis, chemical testing and toxicity testing are all appropriate for Phase II, it is premature to indicate that all three approaches will be required for each area of concern, or that these three are the only possible approaches.

29. Page 8-10, Section 8.2.1, Paragraph 1:
A. Species diversity studies of soil organisms may not be appropriate for all terrestrial sites. For example, areas with eandy soils may have a naturally low diversity. Please revise this paragraph to state that diversity studies will be used where appropriate, and that other ecological sampling approaches will be considered for terrestrial sites.

B. "samples will be taken using a Ponar dredge or stainless steel spoon or scoop...". To eliminate variability related to the use of different sampling methods, only the Ponar sampler should be used to collect biota in otanding water wetlands and offshore areas. If soil organisms are to be collected, the collection method must be standardized as much as possible. For example, a frame of known dimensions can be placed on the soil; a stainless steel spoon or scoop can then be used to excavate the soil within the frame, down to a predetermined depth.

30. Page 8-12, Paragraph 1:
"A minimum of eight samples will be collected..". Clarify the locations of the eight samples.

31. Page 8-13, Section 8.2.2:
A. "The toxicity of the reference area(s) must therefore be tested prior to the area of concern." Toxicity testing of reference area samples must be done <u>at the same time</u> as testing of samples from areas of concern in order to lessen the potential for variability due to test conditions.

B. "chronic toxicity in the form of behavioral and/or reproductive changes will require more expansive testing in the form of more sensitive species..". For toxicity tests, EPA recommends that more than one species (i.e. representing more than one trophic level) be tested for each medium in the initial phase of toxicity testing, rather than waiting to test more sensitive species in the later testing phase. For example, the fathead minnow represents a higher trophic level (freshwater) and is a lese seneitive test species. Additional freshwater test species could include alga and <u>Ceriodaphnia dubia</u> (a water flea). This would save time and provide an overview of toxic effects across trophic levels. Finally, EPA is concerned about potential toxic effects on meroplankton, which are the planktonic (floating) larval stages of many estuarine/marine species. EPA recommends

toxicity testing of species representing these planktonic larvae (appropriate test species can be provided upon request).

32. Page **8-15,** Section **8.3:**
A. Regarding the proposed use of modeling to estimate bioaccumulation of contaminants, indicate how the lipid content of the organisms will be determined (e.g. information in the literature, laboratory results, etc.).

B. The additional toxicity testing proposed for Phase **III** should be combined with that proposed for Phase **11.** (Acute endpoint8 are already included in Phase **11).**

33. Page **8-16,** Section **8.4:**
Clarify whether "Benthic Diversity..." refers to benthic macroinvertebrates.

34. Page **8-17:**
See comment 29B.

35. Page **8-18,** Paragraph **1:**
A. Clarify that the benthic macroinvertebrate samples "will be sent to a laboratory for [taxonomic identification, enumeration,] **species richness** and diversity analysis." Taxonomic identification and enumeration provide the data used to calculate species richness and diversity.

B. Since diversity at site areas will be compared with diversity at reference areas, biota sampling at **site** areas and reference areas should be conducted during the same sampling period.

C. The usefulness of using the Phase II biota sampling to determine the sample size **is** not clear, since Phase II would already be completed at that point. EPA recommends doing a pilot study in each type of ecosystem (i.e. representative ecosystems) to be investigated during Phase **11,** to determine natural variability and the minimum number of samples needed to show a Statistical difference.

D. The final sentence of this paragraph refers to wetlands alone. Since this **is** a comprehensive ***SAP,*** please revise this text accordingly.

36. Page **8-18,** "Seining":
Please revise the text to indicate that other fish collection methods will be considered if seining **is** not successful (e.g. use **of** an otter trawl in deeper areas of Pensacola Bay).

37. Page **8-19,** "Seining Procedures":
2A. Step **2.** focuses on the Wetlands. However, these seining procedures would seem to **be** appropriate for any **shallow** water area. Since **this** is a comprehensive ***SAP,*** please revise the **text** accordingly.

B. Should the phrase "haul with the speed of the current" be revised to read "haul against the current"? **This** approach would help form a pocket in the sein and facilitate capture of the fish.

C. The length and weight of individual fish are usually needed. Indicate whether this will be done in the field or the laboratory,

38. Page 9-1, Section 9.1:
Since temperature measurements are also needed, otate whether the Hydrolab Datasonde 3 will measure temperature.

39. Page 9-10, "Multi-Well Pumping Tests":
A. "...tests...will involve withdrawing groundwater at a constant known rate...". A flow meter should be used for the constant rate aquifer tests to determine if pumping rate fluctuates during the test.

B. ",..until the water level stabilizes...". Aquifer tests performed in the unconfined surficial zone must be conducted for a minimum of 72 hours (48 hours discharge, 24 houre recharge), Aquifer testa performed in the underlying confined aquifer, the Main Producing Zone, muot be conducted for a minimum of 48 hours (24 houre discharge, 24 hours recharge). This amount of water level data is necessary for making appropriate matches to theoretical type curves.

40. Page 9-10, "Equipment Required":
A Cs-137 source is not as accurate, and therefore not as appropriate, for detecting Ra-226. The gamma energy of Cs-137 is 662 KEV, while the gamma energy of Ra-226 is 186 KEV. If possible, an Ra source should be used.

41. Pages 10-8 through 10-12, Section 10.2:
A. This section states that the parameters and analytical method6 are presented in Appendix E. However, Appendix E lists the site numbers and descriptions for NAS Pensacola. Please correct as appropriate.

B. If the CLP methodology is used, then the Statement of Work document number should be included as a reference.

C. Periodic revisions are made to SW-846. If a particular method has been revised, the updated version should be used. The reference should indicate from which edition or revision the methods are taken.

42. Pages 12-1 through 12-2, Sections 12.1 and 12.2:
These sections are unneceaearily vague. Please revise to include the following information for all analyses: eample container size, eample container type and preservation requirements.

43. Page 13-1, Section 13.0:
"The disposal method will be selected by the Navy based on the classification of the waste." In general, laboratory analyses will be needed to support the selected classification, and disposal method, for investigation-derived wastes.

44. Page 15-8, "Analytical Laboratory":
Please see comment 2.

ATTACHMENT A

Following is a list, and brief description, of several alternate methods for collecting groundwater samples. These methods have all been effectively ueed by personnel in U.S. EPA Region IV's Environmental Services Division / Hazardous Waste Section (ESD/HWS) during various in-house remedial investigations over the years. AB a general rule, ESD/HWS doee not install permanent monitoring wells at a site during the site assessment. Instead, ESD/HWS has evaluated a variety of techniques for obtaining shallow groundwater samples quickly and cost effectively without permanent wells. EPA recommends that the following alternative methods be considered for use in the remaining field investigations in an effort to regain some of the time that has been lost.

a. Temporary Monitorinu Wells as installed in the Phase I field work are a quick and effective method of obtaining shallow groundwater eamples. The amount of sediment in the sample can often be reduced to an acceptable level by the use of a peristaltic pump if metals are a concern.

b. The GeoProbe is a device that can be successfully ured in unconsolidated materials to a depth of 30 feet to obtain a groundwater sample. It is generally faster than a temporary well as outlined above, but the volume of sample retrieved often restricts ita use to characterizing VOC contamination. For many sites, however, this is sufficient. One advantage of this device is that it generates very little if any Investigation Derived Waste (IDW). In addition, because cuttings are not brought to the surface, personnel can often use this device in highly contaminated areas with no protective clothing or respiratory protection:

c. The Piezocone and the HydroCone are devices for logging lithology and obtaining groundwater samples. Like the GeoProbe, no cuttings are brought to the surface. Because of sensors located in the tip, this device can sense when it is in water, enabling samplers to obtain the sample at a desired depth. This is an excellent method for determining where permanent wells should be constructed, types of screen to be used, the depth of screens, etc. Again, no cuttings are brought to the surface. In addition, temporary wells can be pushed by the firm that offers this technology, to obtain larger volumes of water.

d. The HydroPunch is a device mounted on a conventional drill rig. It is ueed to push the temporary well to a desired depth and obtain a groundwater sample. It can generally reach much greater depths than the devices outlined above. No cuttinge are brought to the surface unless a pilot hole is drilled.